QUALITY MANAGEMENT PLAN

Falcon Refinery Superfund Site
Ingleside, San Patricio County, Texas

TXD 086 278 058

Prepared For:

National Oil Recovery Corporation
3717 Bowne Street
Flushing, NY 11354

Prepared By:

TRC Environmental Corporation, Inc.
505 East Huntland Drive, Suite 250
Austin, TX 78752

Revision No.: 0
Effective: March 8, 2011

9568562

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1.0 QUALITY MANAGEMENT PLAN IDENTIFICATION FORM

Document Title:	Falcon Refinery Superfund Site Quality Management Plan for TRC	
Project Site:	Falcon Superfund Site Ingleside, San Patricio County, Texas	
Responsible Party:	**National Oil and Recovery Corporation (NORCO)** 3717 Bowne Street Flushing, New York 11354	
Contact:	Richard Bergner 5151 San Felipe Houston, Texas 77056	Phone: (713) 783-4832

TRC Environmental Corporation, Inc.
505 E. Huntland Dr., Ste. 250
Austin, Texas 78752

Regional Remediation Practice Leader:	Mark Robbins, P.E.	Phone: (512) 684-3107
TRC Project Manager:	Stephen Halasz, P.G.	Phone: (512) 684-3351
On-Site Manager:	Paul Supak	Phone: (361) 854-4774
Health and Safety Manger:	Matthew Webre	Phone: (512) 684-3140
QA Manager:	Arsin Sahba, P.G.	Phone: (512) 684-3137

SIGNATURE PAGE

TRC Concurrence

Name: Mark Robbins, P.E.
Title: Regional Remediation Practice Leader

Signature: _____ Date: _____

Name: Stephen Halasz
Title: Project Manager

Signature: _____ Date: _____

Name: Paul Supak
Title: On-Site Manager

Signature: _____ Date: _____

Name: Matthew Webre
Title: Health and Safety Manager

Signature: _____ Date: _____

Name: Arsin Sahba, P.G.
Title: Proejct Quality Assurance Manager

Signature: _____ Date: _____

EPA Approvals

Name:
Title:

Signature: _____ Date: _____

Name:
Title:

Signature: _____ Date: _____

2.0 INTRODUCTION

The TRC Environmental Corporation (TRC) Environmental Sector provides professional environmental services (e.g., environmental consulting, engineering, scientific, technical, regulatory support) to industry, government, and the private sector. TRC recognizes that consistently delivering services that meet the applicable requirements is fundamental to both TRC's success as an environmental and engineering firm and the successful completion of its client's projects. This Quality Management Plan (QMP) describes TRC's quality system, as it applies to the Falcon Refinery Superfund Site project, which will be used to ensure that TRC will consistently provide services which comply with all of the applicable contractual and regulatory requirements. This project-specific QMP is consistent with TRC's Environmental Sector QMP which is based on the substantive elements of ISO 9001 (i.e., the international quality management systems standard) and TRC's Quality Management Policy.

2.1 Applicability

The work conducted at the site is carried out under Consent Orders issued by the United States Environmental Protection Agency (USEPA) as part of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Quality assurance/quality control (QA/QC) practices and procedures described in this QMP will be followed by TRC and TRC's subcontractors during the sample collection activities of the response action being conducted at Falcon Refinery Superfund Site in Ingleside, San Patricio County, Texas. Accutest in Houston, Texas will analyze the environmental media samples obtained at the site and will follow QA/QC procedures described in the laboratory's quality manual. Appendix A provides a project-specific personnel organization chart.

2.2 Definitions

The following terms and definitions are essential to understanding the quality program described in this QMP.

Data Quality Objectives (DQOs) – A systematic planning process designed to produce technically sound and cost effective remedial response activities. The process clearly defines the project objectives in terms of qualitative and quantitative statements, identifies corresponding types and quantities of environmental data, and specifies tolerable levels of decision error.

Data Quality Indicators – Quantitative estimates of precision, accuracy, and completeness of the environmental data. Criteria for the data quality indicator estimates are established to support the project DQOs.

Environmental Data – Information collected directly from tests, measurements, or environmental sample analyses, produced from models, or compiled from other sources (e.g., literature, industry databases).

Quality Assurance (QA) – An integrated overarching system of activities used to guide project planning, execution, and assessment and ensure that the resultant environmental data are of known, documented, and acceptable quality.

Quality Assurance Project Plan (QAPP) – A project planning document which describes how the project quality management program will be applied to specific sample and data collection, evaluation, and reporting activities.

Quality Control (QC) – Activities or procedures that monitor and measure the performance of a process or measurement result against defined standards or criteria to ensure that the process or measurement results meet the pre-defined standard or criteria.

Quality Management (QM) – The act of overseeing all activities and tasks needed to maintain a desired level of excellence. Includes creating and implementing quality planning and assurance, as well as quality control and quality improvement.

Quality Management System – A structured management system which provides the framework for the communication of quality-related policies, QA activities, and QC procedures. The primary function of a QM system on environmental remedial response programs is to ensure that: (1) the collected environmental data are of known, acceptable, and documented quality; and (2) remedial actions are designed, constructed, and operated in a manner to produce the desired environmental results.

3.0 TRC QUALITY MANAGEMENT POLICY AND OBJECTIVES

3.1 Management Commitment and Quality Policy

It is the policy of TRC to assure the quality of its services through the implementation of a formal Quality Management (QM) program. TRC's QM program promotes the achievement of quality and performance objectives through planning, documenting, and integrating customized quality programs into each project, based on the project-specific quality goals and requirements.

TRC's QM program is administered by a Quality Management Director who reports to TRC's Senior Vice President and General Counsel and Quality Coordinators who are located throughout the company within the operational Sectors (e.g., Environmental Sector) and/or Practices (e.g., Air Measurements Practice). This demonstrates the TRC Executive Management Team's commitment to quality and ensures that the quality function has the necessary freedom to implement an effective program across a diverse array of services without undue bias or pressure.

Consistent with TRC's company-wide quality policy, the TRC Falcon Refinery Superfund Site remedial investigation and response action management team is committed to establishing a comprehensive QM program which ensures that technically sound and cost effective remedial response activities are implemented on all tasks of this project. The project quality policy includes the following minimum expectations:

- All employees take responsibility for the quality of their individual work.
- Projects are staffed to ensure that team capabilities and expertise are in line with the job requirements.
- Independent peer review applies to all project tasks and is consistently implemented.
- Communication between project managers and clients and managers and employees is encouraged and recognized as a vital component of an effective quality management program.
- Procedural controls include, but not limited to, preparation of agency approved work plans and QAPPs, engineering design reviews, measurement and test equipment controls, sample custody and handling procedures, data review and validation (as applicable to the task-specific scope of work).

3.2 Quality Program Goals and Objectives

Project goals and objectives fit into two general categories: (1) goals that are related to meeting requirements or specifications; and (2) goals related to improving the performance of work processes. The following are the goals and objectives for this project-specific QM program:

- Ensure that appropriate planning is performed and used to guide the design of efficient, effective, and technically sound task-specific procedures.

- Minimize the frequency of questionable environmental sample data associated with excursions from specified sample collection, handling, and documentation procedures.
- Ensure subcontractor performance consistently meet expectations (e.g., technical performance, safety record).
- Minimize the number of revision cycles associated with the preparation of engineering design deliverables (e.g., drawings, specifications) and the preparation of written reports.
- Reduce the frequency of reissuing project deliverables due to errors.
- Reduce the frequency of project cost overruns by closely monitoring the scope of work, budget, status, and effectively processing any required change orders.

4.0 TRC PROJECT ORGANIZATION

This section describes the project organization in terms of roles and responsibilities as related to the QM program.

4.1 Internal TRC Operations

Familiarity and compliance with the quality program described in this QMP is the responsibility of all employees who participate on all tasks within TRC's contractual scope of work at the Falcon Refinery Superfund Site. In addition, the following sections describe roles and responsibilities of project personnel.

4.1.1 Project Manager

TRC has designated a Project Manager to coordinate all activities within the contractual agreements. The Project Manager serves as the primary point of contact and is responsible for assuring that the project is properly staffed and is responsible for overall technical direction and quality of the work performed. The Project Manager establishes budgets and schedules, assures that personnel have appropriate training, and monitors staff performance. The Project Manager is responsible for monitoring the implementation of the QM program. Specific responsibilities include:

- Assuring that labor, equipment, personnel, and funding are available for required tasks.
- Providing project technical direction.
- Coordinating the preparation, review, and approval of reports, plans, and procedures. This includes responsibility for performing the final review of all interim and final work products.
- Supporting the QA Manager in matters involving the quality of work.
- Ensuring that responses to corrective action requirements identified by the project team are adequate, timely, and cost effective.
- Maintaining and tracking the project budget and schedule.
- Coordinating, in tandem with the group managers, personnel and field activities. This includes, but is not limited to, ensuring that project personnel are appropriately qualified and trained for their assigned tasks.
- Staying informed of changes in project direction resulting from evolving client needs and/or TRC constraints.

Two groups have been formed to support the project under the Project Manager's direction: the Technical Specialty Group and the Remediation System Operations and Maintenance (O&M) Group. Each group is led by a group manager who is responsible for project tasks assigned to that group.

4.1.2 Technical Specialty Group Manager

The Technical Specialty Group Manager is responsible for leading the technical specialty teams, providing project technical direction for the focused feasibility study, pilot testing, and risk evaluation. This Group Manager is also responsible for assuring that technical specialty tasks are completed on time and within budget, working closely with the Remediation System O&M Group Manager for system design, field task coordination, and regulatory interface.

The Technical Specialty Group Manager assures that peer reviews of technical documents are conducted, that data are evaluated for usability in technical documents and for decision-making, and that data are properly interpreted. The Technical Specialty Group Manager assists with development of data quality objectives for specialized tasks and conducts QC checks of technical activities.

4.1.3 Remediation System Operations and Maintenance Group Manager

The Remediation System Operations and Maintenance (O&M) Group Manager is responsible for leading the remediation system O&M team, remediation system subcontractor management, remediation design support, and cost and schedule control for O&M tasks. The Remediation System O&M Group Manager is also responsible for assuring that field activities are conducted in accordance with the QAPP and associated project Standard Operating Procedures (Appendix B). The Remediation System O&M Group Manager also manages the data management group and is responsible for maintaining the project database. He/she also assures that documents produced by this group receive peer review and that data are evaluated and qualified as appropriate.

4.1.4 Operations Manager

The Operations Manager is responsible for coordinating with the laboratory, coordinating field crews, system O&M, data interpretation, and data acquisition.

4.1.5 Technical Staff

Technical Specialist Group

The Technical Specialist Group employees are responsible for developing the focused feasibility study, selecting technologies for pilot testing, providing design services technical support for the pilot tests, developing a vapor intrusion model, and conducting risk assessments. With the Remediation System O&M Group, the Technical Specialist Group will determine well siting and provide oversight for well installation and abandonment. The Technical Specialist Group will also be responsible for completing permit applications, overseeing compliance, and assisting with implementation of institutional controls. Technical specialists are utilized on an as-needed basis for specialty tasks, such as the focused feasibility study, risk assessment, groundwater modeling, engineering design, and permitting. Prior to assignment of a task, the Group Manager and/or Project Manager discuss task requirements with the technical specialist. The discussion addresses their role, responsibilities, task requirements, budget, schedule, and

milestones. This helps assure that quality is maintained on each task assigned and the activities are accomplished in accordance with this QMP.

Remediation System O&M Group

The Remediation System O&M Group employees are responsible for O&M of the remediation systems at the PGA South Site, collecting soil and groundwater samples, conducting the vapor intrusion study; and assisting with implementation of pilot studies. They are also responsible for routine groundwater monitoring and compliance reporting. The Remediation System O&M Group will, in coordination with the Technical Specialist Group, oversee well installation and abandonment, recommend remediation system optimization improvements, and implement system upgrades as needed. The Senior O&M Technician and Electrical System Integration staff members are responsible, under the direction of the Operations Manager, for maintaining the remediation system and for implementing system upgrades as directed by the Operations Manager and Project Manager.

4.1.6 QA Manager

The designated TRC QA Manager has overall responsibility for quality assurance oversight and is responsible for leading the project team in the implementation of this QMP. The QA Manager communicates directly to the TRC Project Manager (or designee) on issues associated with the quality program and/or any quality-related issues, concerns, or opportunities for improvement.

The QA Manager is responsible for ensuring performance of the following:

- Development, documentation, and implementation of QA activities to verify that appropriate QC measures are being conducted and appropriately recorded in the project files.
- Verifying that records related to project quality are documented and maintained in a manner that assures they are secure and retrievable.
- Preparation of periodic quality reports, as required.
- Providing personnel QA and/or QC training, as required.
- Conducting periodic performance audits and/or surveillances to measure conformance to specifications, requirements, and compliance with the procedures described in this QMP.
- Verifying that corrective actions are designed, conducted, and documented in a manner that resolve the immediate issue and minimizes or precludes future occurrences.
- Review and approve project SOPs and training records.

At a minimum, the QA Manager will be responsible for performing these activities at least quarterly.

4.1.7 Health and Safety Manager

The Health and Safety Manager is responsible for:

- Verifying that Health and Safety Plan (HASP) requirements are appropriate and followed.

- Providing or making arrangements for personnel safety training, as required.
- Reviewing the QAPP for QA/QC procedures relevant to health and safety.
- Conducting periodic health and safety assessments of field activities.

4.1.8 Independent Peer Reviewer

The Project Manager or Group Manager assigns one or more individuals to the role of Independent Peer Reviewer. Responsibilities of the Peer Reviewer include:

- Working with the Project/Group Manager to understand the client's expectations, needs, constraints, priorities, and TRC's contractual commitments.
- Being available to the Project/Group Manager and other project team members to provide additional technical guidance or insight.
- Staying informed of changes in project direction resulting from evolving client needs and/or TRC constraints.
- Reviewing all interim and final work products.
- Pursuing all concerns to satisfactory resolution.

4.2 External Operations

All external entities including, but not limited to, laboratories, drilling contractors, and other specialty consultants will have an approved Quality System that complies with the EPA's guidelines. The QA Manager will ensure that the documented quality system of each the subcontractors and/or consultants is in adequate for the services to be provided. The QA Manager will also assist the Project and Group Manager in reviewing subcontractor and consultant services to verify that they meet the requirements of the QMP and the project-specific QAPP after the internal data review by the generating entity. If problems or deficiencies are identified, the QA Manager will contact the designated Manager of the generating entity to discuss the issue or problem and request that appropriate corrective actions be implemented.

5.0 TRC QUALITY MANAGEMENT SYSTEM PROCEDURES AND CONTROLS

This section summarizes the quality control procedures used to monitor and ensure that environmental data and other project deliverables and/or professional services are of known and acceptable quality, fulfill the contractual and regulatory requirements, and support the project data quality objectives.

5.1 Project Planning

Integral to the success of TRC projects is adequate activity design and planning. Project planning begins during the proposal and/or cost estimating phase of each project. The Project and/or Group Manager is responsible for ensuring that the established technical and administrative procedures are: (1) appropriate to the scope of work and adequate to meet client expectations and technical, regulatory, or other requirements; (2) clearly communicated to the project team; (3) in alignment with project objectives, requirements, and specifications; and that (4) projects or services provided by the project team are delivered within the established schedule and budget.

5.2 Planning Measurements and Analyses

This quality management program recognizes the importance of planning testing and analysis programs to ensure that tests performed generate data of known and acceptable quality. All testing will be performed according to written and approved test procedures based on recognized national standards and methods, as applicable. The qualifications of inspection, testing, and/or analysis personnel will be documented to show compliance with requirements of applicable codes and standards. The test procedures will describe the required prerequisites, test instrumentation, methods to be employed, characteristics to be tested, applicable calibration and QC procedures with corresponding acceptance limits, required environmental conditions, and documentation and record keeping procedures. These procedures will be approved by TRC and the EPA. TRC senior technical personnel will oversee the performance of all testing programs and will subsequently evaluate all generated test results. Accutest will perform sample analyses in accordance with project requirements.

5.3 Internal Communication

TRC uses a variety of methods of internal communication. These included, but are not limited to, communication through the organizational structure, a company-wide electronic mail system, company newsletters, an internal internet website, and project meetings. Maintaining open lines of communication across the project team and between TRC, its subcontractors, and the client is a key element of a successful project. The Project Manager will take a leadership role in initiating and encouraging effective communication throughout the project.

5.3 Independent Peer Review

One of the cornerstones of TRC's quality management programs is the Independent Peer Review process. As a key QC procedure, peer review is strategically integrated into the overall schedule for each activity with an emphasis on reviewing interim and final deliverables. The benefits gained from effective peer review include the following:

- All projects will provide increased value to the client when the expertise of senior staff and technical area specialists are used effectively.
- Errors in outgoing work products are minimized.
- All work products are checked to confirm adequacy and technical merit.

5.4 Controls for Purchasing Materials and Subcontracting Services

As applicable to the item or service, quality requirements and procedures described in this QMP will be conveyed to materials purchased and/or any services subcontracted as part of the project. The Project Manager is responsible for ensuring that the items or professional services meet or exceed the quality standards and procedures described in this QMP, ensuring that test or environmental analysis laboratories hold applicable accreditation certificates, ensuring that any required professional licenses or registrations are maintained by subcontractors (e.g., surveyors), and verifying that any subcontractor's services comply with the QMP and any other terms of TRC's contract.

5.5 Record Keeping and Document Control Procedures

As determined by TRC's Corporate Counsel, the TRC records retention policy is to retain project-related records, unless otherwise stated in a contractual agreement with the client, for 6 years (commercial clients) or 10 years (government clients) beyond project completion.

Project-specific quality records (e.g., evidence of peer reviews) are maintained in the TRC project file (or equivalent) and are maintained for the retention period corresponding to the type of client or contractual agreement. At a minimum, a copy of each project deliverable and/or client submittal is retained in the project file along with corresponding transmittal and peer review documentation. In addition, the Project and/or Group Manager is responsible for:

- Determining which records may be significant to support the results, conclusions, and subsequent project deliverables. These project records must be maintained (i.e., material documentation) in the TRC project files.
- Establishing periods of retention (e.g., 6 yrs after project closing), a file indexing system, and locations of records retention in accordance with contractual agreements and to ensure that TRC can adequately support, defend, or represent the services performed and any conclusions formulated independent of staffing changes over time.

- Coordinating project-specific procedures for the management of hard copy and electronic project files with local (e.g., office) procedures.

TRC quality program documents (e.g., QMPs, SOPs) are required to be quality assured and controlled. Document control procedures ensure that the quality program documents and their subsequent revisions are reviewed, approved, and distributed to all appropriate individuals and organizations. Persons qualified to ensure their accuracy and completeness are designated to perform the preparation, review, and approval of quality program documents.

5.6 Project-Specific Quality Assurance Programs

Integrating the flexibility to design custom quality programs (i.e., varying combinations of QA and QC elements) for each project is a necessary feature of our QM program. By designing custom programs that meet or exceed the requirements of this QMP, the emphasis is on integrating adequate QC measures and QA features and avoiding excessive controls that can occur with a "one-size-fits-all" approach. It is the responsibility of the Project and/or Group Manager to determine and incorporate adequate and appropriate QA elements and QC procedures on each task on this project.

5.7 Engineering Design Review and Controls

Project involving engineering design and/or construction aspects include specific considerations and controls. These include, but are not limited to:

- Guidelines to ensure the adequacy of pre-design efforts and the design basis.
- Guidelines associated with design development, including establishing design criteria, checking calculations, drawings, and design reviews.
- Bid document and construction support services guidelines.

5.7.1 Pre-Design, Design Basis and Design Development

The planning process of a design project (including pre-design studies, establishing a design basis, and corresponding reports, plans, and specification guidelines) must be carefully programmed, scheduled, and monitored to produce a product that is consistent with the needs and objectives of the particular project. The following guidelines apply to engineering design development efforts:

- Preparation of written design criteria.
- Design modifications and changes to the design criteria must be reviewed and approved by the Project Manager who approved the original contract documents and/or the design criteria.
- The design must be backed up with complete, legible, and logically arranged engineering calculations.

- When computer programs are used to generate calculations, only those that are verified and current should be used. The program should be referenced by name and version, input and output should be included, and hardcopy printouts should be added to the project file as a backup.
- All calculations must be checked by a designated Independent Peer Reviewer for completeness, mathematical accuracy suitability of reference data, compliance with applicable codes and requirements, and adherence to the design concepts.
- Determine the drawings to be prepared, contents, scales, and titles and/or numbering schemes.
- The drawings shall bear the initials of the CAD Operator, Project Engineer and Project Manager. Final engineering drawings shall be signed and sealed by a licensed Professional Engineer in charge of the design efforts.
- In-house design reviews followed by external reviews by the client are used to evaluate the constructability, technical completeness, and reasonable accuracy. The Project Manager or Group Manager schedules these reviews at various stages or milestones.

5.7.2 Drawings

TRC will comply with clients-specified CAD and graphic standards. Care will be given to ensure that applicable project objectives and requirements are incorporated and reflected in each drawing included in a project deliverables submittal. Drawings will include a standard title black to clearly and concisely present tracking information such as its unique identification number, revision number and date, and the professional engineer (PE) seal.

5.7.3 Specification Preparation

When contracted to prepare engineering specifications, care will be given to ensure that the level of detail is aligned with industry standards and national guidelines, sufficient to ensure that the project objectives will be met, that applicable quality standards are incorporated, and any testing and inspection requirements meet national guidelines.

5.7.4 Bid Documents and Other Construction Support Services

When TRC is contracted to provide bid documents and/or construction support services, including acting in the capacity of Certifying Engineer, Construction Manager, and/or Construction Inspectors, appropriate quality reviews and controls will be integrated into these projects to ensure adherences to the contractual and professional requirements. The Project Manager and/or Group Manager is responsible for designing the appropriate project-specific quality program.

5.8 Measurement and Test Equipment Controls

As applicable, project-specific procedures will be developed to provide guidelines for selection of the appropriate equipment, control of the equipment, calibration, and adjustments to be performed at stated frequencies to maintain accuracy within tolerance limits. The appropriate application of these procedures is determined on a project-specific basis.

All test equipment calibrations will be performed: (1) in accordance with manufacturer's maintenance plans either by project personnel or by an approved subcontractor; (2) using standards or reference materials which are documented and traceable to national standards established by the National Institute of Standards and Technology (NIST), or equivalent; and (3) following the QAPP schedule and acceptance criteria. Note: If no national standard exists, the basis for calibration shall be the state-of-the-art for the particular piece of equipment and will be documented as such.

Test equipment will be removed from service when its accuracy is suspect. When test equipment is found to be out of calibration, a documented evaluation should be performed to determine the validity of test results obtained with the equipment. If test equipment is found to be out of calibration repeatedly, it shall be repaired or replaced and the impact on test results should be documented.

5.9 Standard Operating Procedures

When specified in contractual requirements, standard operating procedures (SOPs) are developed for many routine tasks associated with environmental services projects. Project-specific SOPs are included in Appendix B to this QMP. Development of new SOPs and/or revisions to existing SOPs will be done following document control procedures and under the oversight of the QA Manager.

5.10 Data Acquisition, Review and Validation Procedures

Data acquisition, review and validation, and statistical analysis procedures are developed at the beginning of the specific task or project (as applicable to the scope of work) and the process is documented in the project QAPP, work plan, or other detailed scope of work documents. These procedures define responsibilities, procedures, analytical QC data acceptance criteria and detailed statistical analysis procedures and assumptions. For field investigation projects, TRC specifies data quality objectives or indicators which are then evaluated throughout the course of the project.

5.11 Identification and Traceability

At the start of each task or project, the Project or Group Manager will identify the project requirements regarding identification and traceability and will establish the appropriate procedures in the corresponding Work Plan or QAPP.

Examples of project activities that require identification and traceability procedures include:

- Environmental sample collection and analysis.
- Naming and revision tracking of engineering drawings and supporting calculations or data modeling.
- Ensuring data integrity is preserved during measurement data reduction or processing and naming conventions used to report the data.

5.12 Custody, Handling, Storage and Shipping of Samples

TRC understands and implements strict chain-of-custody procedures, when applicable to the project, in accordance with the U.S. Environmental Protection Agency (EPA) Office of Enforcement and Compliance Monitoring – National Enforcement Investigations Center (NEIC) requirements (NEIC, 1986). Strict chain-of-custody procedures are implemented on all projects that included the collections of environmental samples and/or data in support of, or because of, environmental regulations.

5.13 Software Control

TRC maintains a corporate software policy that specifies the use of licensed copies only of commercial software. TRC personnel are expressly prohibited from using non-licensed copies of commercially available software. In addition, prior to the use of specific software (e.g., for data reduction, modeling, or performing complex calculations) its performance specifications will be reviewed and confirmed to be adequate for the specific task.

5.14 Nonconforming Materials or Services and Corrective Actions

The Environmental Sector quality management program encourages prevention of items, services, or activities that do not conform to specified quality requirements. However, when instances of nonconformance occur, prompt and effective actions to remedy the situation are essential.

When nonconformance has been identified, it is an Environmental Sector goal to correct the problem and prevent future occurrences whenever practical. Appropriate preventative measures will be documented concurrent with documentation of the occurrence to prevent recurrence of the nonconformance.

5.15 Workplace Safety

To ensure that the quality of services provided by TRC is not impacted by health and safety issues, TRC has established a Safety Management Policy. A copy of this policy is made available to all TRC employees on the TRC internal website (“TRCNET”). Implementation of this policy demonstrates that the company, including the Environmental Sector and this project team, is committed to providing a safe and healthy workplace for its employees and is

committed to adherence to all client-specified safety and health requirements. TRC's Safety Management Program is overseen by Sector Safety Coordinators under the direction of TRC's Safety Management Director.

As appropriate to the project scope of work, project-specific health and safety plans will be prepared and implemented. The Project Health & Safety Manager will oversee safety-related aspects of the project and will serve as a resource to the project team.

5.16 Training and Qualifications

Maintaining a project team of qualified individuals is vital to TRC's ability to consistently provide services that meet our client's needs and requirements. TRC is committed to ensuring that appropriately qualified and/or trained individuals are assigned to each project role and task.

Many required and optional training opportunities are made available to TRC personnel through the internet-based TRC Academy. All TRC personnel participate in company-sponsored quality assurance training and annual business ethics and integrity training. Professional licensing or regulatory requirements, career development interests, and project requirements are considered when designating the appropriate safety, technical, and/or specific subject matter training for an individual.

6.0 QUALITY SYSTEM ASSESSMENTS

This section describes assessment, reviews, and audits that can be used to evaluate the effectiveness of the QM program, verify implementation and compliance with this QMP, and identify opportunities for continual improvement.

6.1 Management Review

It is TRC's desire to continually improve. Management reviews are a fundamental component of ensuring compliance with established quality procedures and provides opportunities to:

- Indentify the strengths and weaknesses of a program, procedure, or specific work area.
- Encourage dissemination of "best practices" to other groups within the project.
- Initiate corrective actions to minimize weaknesses or quality program gaps.

The QA Manager will periodically conduct reviews of the project quality management system. The primary purposes of these reviews are to evaluate compliance with and the effectiveness of the quality management systems, as described in this QMP.

6.2 Project Audits

The purpose of a quality audit is to provide an objective, independent assessment of a measurement, engineering product, or sampling effort. Laboratory audits ensure that the laboratory's data generating, data gathering, and measurement activities produce reliable and useful results. Audits of engineering calculations and design drawings ensure that the established procedures are followed. Field audits ensure that sample collection activities produce valid and useful samples. Cases can occur in which inadequacies are identified in the measurement, engineering, or field systems. In such cases, audits provide the mechanism for implementing corrective action. Project QA audits of field and laboratory activities will only be conducted on as needed basis.

6.3 Risk Assessment and Management

To ensure that this quality program is focused on implementing only practical and cost-effective controls, an informal risk assessment process focused on quality management concepts is implemented. Conducting a risk assessment is intended to support managers in prioritizing which controls to implement such that risks to the achievement of the project goals and objectives are eliminated or minimized. Both risks and related consequences associated with not successfully achieving client objectives are included in the risk assessment process. Management of the potential risks identified as having notable associated consequences are managed through effective implementation of controls (refer to Section 5 of this QMP for example procedural controls), increased involvement and oversight by the project management team and/or technical experts, and/or by expanding the project inspection or quality audit program.

6.4 Corrective Action Process

This quality program, and under the leadership of the Project Manager and QA Manager, requires the project team to correct any conditions identified as adversely affecting the quality of services provided (i.e., conditions that prevent achievement of requirements). All notable failures, malfunctions, recurring errors, or other non-conformance issues should be reviewed and evaluated for potential negative impact on the project outcome. The Project Manager (or Group Manager or Operations Manager) and the QA Manager work together to design an appropriate corrective action plan for resolving significant or recurring quality-related problems.

6.5 Continual Improvement

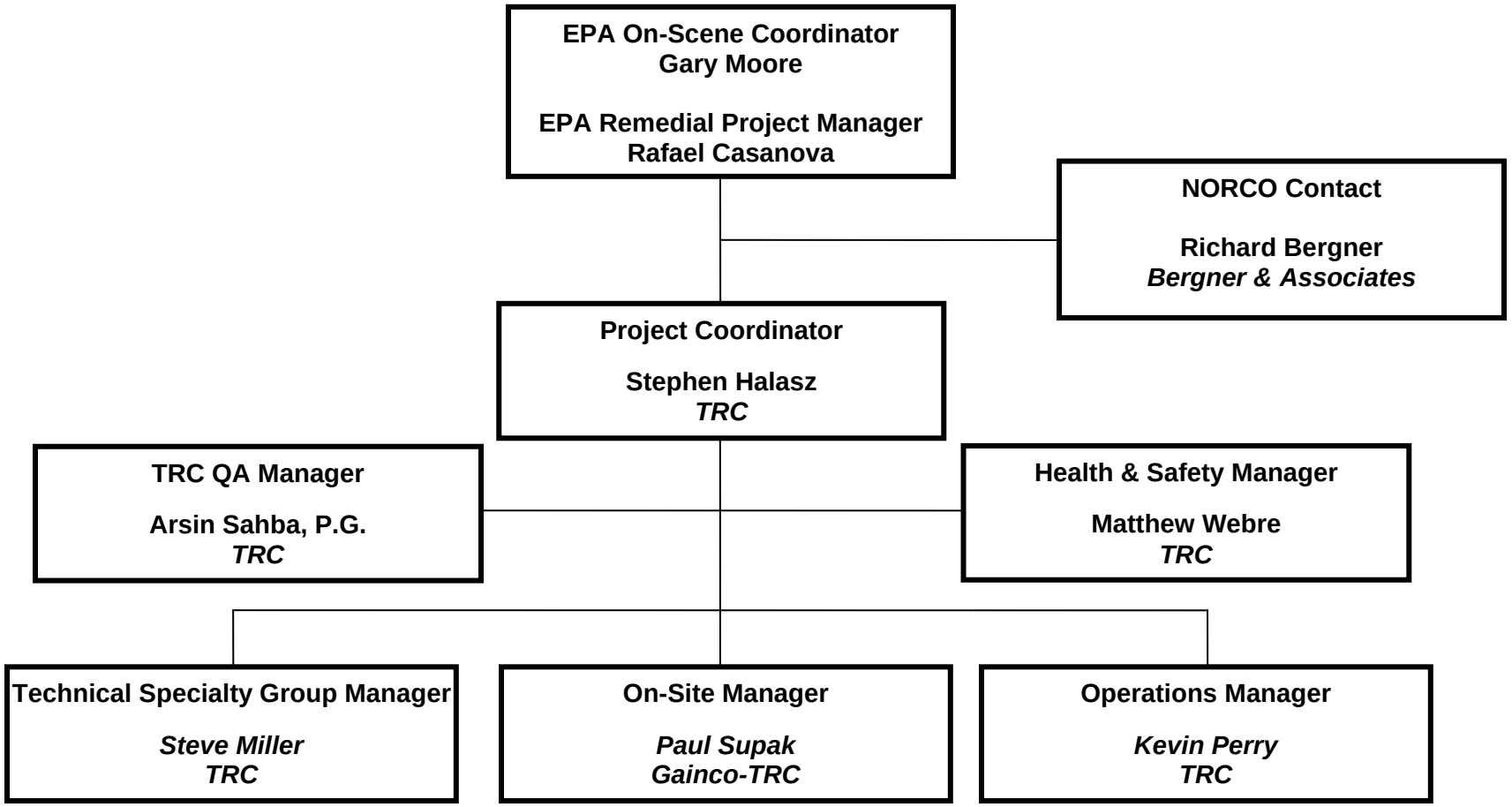
Opportunities for continual improvement initiatives can be identified by individual staff members while performing their routine job assignments, by the QA Manager during a management review or project audit, by the project management team management during the course of the project, or through the receipt of a complaint concerning a work product. In all cases, the opportunity for continual improvement is evaluated by the Project Manager (or designee) who determines whether the resultant improvement to the project outweighs the cost to implement the change and whether the procedural changes would have other or indirect impacts on the project as well.

When any complaint is received concerning a work product, an immediate investigation is conducted to determine the nature of the complaint. In most instances, the issue turns out to be that of miscommunication or a misunderstanding of the project scope of work and objectives. These issues are typically resolved by further discussion with the client to gain a full understanding of their perceptions and expectations or with the project team to ensure all have a clear understanding of the project requirements. If a deficiency is found as a result of the complaint, corrective action is begun immediately.

Appendix A

QUALITY MANAGEMENT ORGANIZATION CHART

APPENDIX A – QUALITY MANAGEMENT ORGANIZATIONAL CHART



Appendix B

STANDARD OPERATING PROCEDURES